WHAT IS CLAIMED IS:

1. A monitor comprising:

a spectral characteristic of a tissue site derivable from a primary input;

at least one parameter determinable from a secondary input;

a compensation relationship of said spectral characteristic, said at least one parameter and a compensated physiological measurement; and

a processor configured to output said compensated physiological measurement in response to said primary input and said secondary input utilizing said compensation relationship.

2. The monitor according to claim 1 wherein said compensation relationship comprises:

baseline calibration data relating said spectral characteristic to an uncompensated physiological measurement;

modified calibration data generated from a modification of said baseline calibration data in response to said at least one parameter; and

a look-up table having said spectral characteristic as an input and providing said compensated physiological measurement as an output according to said calibration data.

3. The monitor according to claim 2 wherein said at least one parameter is a blood gas measurement and said compensation relationship further comprises:

a comparison of said uncompensated physiological measurement with said blood gas measurement;

a sensitivity control; and

modification rules responsive to said comparison and said sensitivity control, said modification rules determining said modification.

4. The monitor according to claim 3 wherein said modification rules include at least one polynomial function approximating at least a section of said baseline calibration data and adjustable so as to accommodate said blood gas measurement.

5. The monitor according to claim 4 wherein said at least one polynomial function can be represented as a Bezier curve.

6. The monitor according to claim 1 wherein said compensation relationship comprises:

calibration data relating said spectral characteristic to an uncompensated physiological measurement;

a look-up table having said spectral characteristic as an input and providing said uncompensated measurement as an output according to said calibration data; and

a correction of said uncompensated physiological measurement in response to said at least one parameter so as to provide said compensated physiological measurement.

7. The monitor according to claim 6 wherein said at least one parameter is a carboxyhemoglobin concentration and said correction comprises a function which distinguishes carboxyhemoglobin from oxyhemoglobin.

8. The monitor according to claim 1 wherein said compensation relationship comprises:

calibration data relating said spectral property and said at least one parameter to said compensated physiological measurement, said calibration data representing a multidimensional calibration surface; and

a look-up table having said spectral property and said at least one parameter as inputs and providing said compensated physiological measurement.

9. The monitor according to claim 1 wherein said compensation relationship comprises:

calibration data representing a plurality of wavelength-dependent compensation calibration curves, each of said compensation calibration curves relating said spectral characteristic to said compensated physiological measurement;

a look-up table having said spectral characteristic as an input and providing as an output said compensated physiological measurement according to said compensation calibration curves; and

a wavelength determination in response to said at least one parameter so as to select a sensor wavelength and a corresponding one of said compensation calibration curves.

10. A monitoring method comprising the steps of:

inputting a sensor signal responsive to a spectral characteristic of a tissue site;

deriving a physiological measurement from said characteristic;

obtaining a parameter, wherein said physiological measurement has a dependency on said parameter;

determining a relationship between said spectral characteristic and said parameter that accounts for said dependency; and

compensating said physiological measurement for said parameter utilizing said relationship.

11. The monitoring method according to claim 10 wherein said obtaining step comprises at least one of the substeps of:

deriving said parameter from said sensor signal;

inputting said parameter from a sensor that also provides said sensor signal;

inputting said parameter from an external instrument; and

manually entering said parameter based upon an external measurement.

12. The monitoring method according to claim 10 wherein said compensating step comprises the substeps of:

storing baseline calibration data;

modifying said baseline calibration data according to said parameter so as to provide modified calibration data; and

looking-up said physiological measurement from said modified calibration data according to said spectral characteristic.

13. The monitoring method according to claim 12 wherein said physiological measurement provides an SpO_2 value and said parameter is a manually input SaO_2 value, said modifying substep comprising the further steps of:

comparing said SpO_2 value to said SaO_2 value so as to determine a difference; and

determining said modified calibration data so as to reduce said difference.

14. The monitoring method according to claim 10 wherein said compensating step comprises the substeps of:

storing baseline calibration data;

looking-up said physiological measurement from said calibration data according to said spectral characteristic; and

correcting said physiological measurement according to said parameter.

15. The monitoring method according to claim 14 wherein said parameter is a hemoglobin constituent measurement and said correcting substep comprises the substeps of:

distinguishing said hemoglobin constituent from oxyhemoglobin and reduced hemoglobin; and

adjusting an oxygen saturation measurement according to said distinguishing substep.

16. The monitoring method according to claim 10 wherein said compensating step comprises the substeps of:

storing a multidimensional calibration surface;

looking-up said physiological measurement from said calibration surface according to said spectral characteristic.

17. The monitoring method according to claim 10 wherein said compensating step comprises the substeps of:

storing wavelength-dependent calibration data;

determining a wavelength according to at least one of said parameter and said physiological measurement;

selecting an active portion of said calibration data according to said wavelength;

adjusting a sensor so that said spectral characteristic corresponds to said wavelength; and

looking-up said physiological measurement from said active portion of said calibration data according to said spectral characteristic.

18. The monitoring method according to claim 17 wherein said parameter is a null value and said determining substep comprises the substeps of:

identifying a range of said physiological measurement; and

specifying said wavelength according to said range.

19. The monitoring method according to claim 18 wherein said physiological measurement corresponds to oxygen saturation at said tissue site and said wavelength has a first value at normal oxygen saturation levels and a second value at below normal oxygen saturation levels.

20. A monitor comprising:

a primary input means for determining a spectral characteristic associated with a tissue site;

a secondary input means for determining a parameter that is relevant to measuring oxygen saturation at said tissue site; and

a compensation relationship means for relating said spectral characteristic, said parameter and an oxygen saturation measurement.

21. The monitor according to claim 20 wherein said compensation relationship comprises a means for modifying baseline calibration data according to said parameter.

22. The monitor according to claim 20 wherein said compensation relationship comprises a means for correcting an uncompensated oxygen saturation measurement so as to derive a compensated oxygen saturation measurement.

23. The monitor according to claim 20 wherein said compensation relationship comprises a means for looking-up said oxygen saturation measurement from a multidimensional calibration surface.

24. The monitor according to claim 20 wherein said compensation relationship comprises a means for modifying a sensor wavelength and for selecting corresponding wavelength dependent calibration data.